

REMARKS

Claims 20-22, 24-29 and 31-41 are presently in the application. Claims 23 and 30 have been canceled.

Claims 20-22, 31-39 and 41 have been rejected under 35 U.S.C. 103(a) as unpatentable over Birckigt et al (WO 02/42615) (using US 6,938,409 as the English language equivalent) in view of Caren et al (US 6,321,531). The statement of the rejection refers to 35 U.S.C. 102(a), but the body of the rejection makes it clear that the rejection is actually under 35 U.S.C. 103.

Birckigt teaches a method for reducing carbon-containing particle emissions from a diesel engine, comprising: routing exhaust gas emitted by the diesel engine through a filter; separating out particles contained in the exhaust gas at filter surfaces; and oxidizing the particles which have been separated out for regeneration of the filter initiated by non-thermal, electric surface creeping discharges selectively generated at the filter surfaces occupied by the particles. Oxidizing is initiated by electrical excitation for the surface creeping discharge by one of an alternating voltage and a periodic pulse voltage. In the embodiment illustrated in Fig. 13, Birckigt teaches controlling the amplitude and frequency/pulse repetition rate as a function of pressure and/or temperature of the exhaust gases.

Caren et al describes the use of a corona discharge device to produce free radicals to reduce pollutants in an exhaust gas stream. See, col. 11, l. 45 - col. 12, l. 65.

In contrast, applicants' claims are directed to a method that enriches the exhaust gas with ozone and the ozone concentration is controlled as a function of the temperature and/or the particle content downstream of the enriching. Birckigt et al is definitely not able to

control an ozone concentration. The only thing that can be controlled in Birckigt et al is the power for generation of a plasma; ozone is not mentioned in Birckigt et al. Caren et al uses a corona discharge, which is known to produce only a limited amount of ozone. Caren et al actually teaches that what is produced is a cocktail of free radicals. Caren et al provides no teaching or suggestion of controlling an ozone concentration.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Neither Birckigt et al nor Caren et al teaches or suggests a method of the type recited in claim 20, including the step of controlling the concentration of ozone in an exhaust gas stream essentially as a function of at least one of the temperature and the particle content of the exhaust gas, such that the remaining particle content of the exhaust gas stream does not exceed a predetermined limit value. Accordingly, claim 20 and the claims dependent thereon are not rendered obvious by the combined teachings of Birckigt et al and Caren et al.

Further, in order to establish prima facie obviousness of a claimed invention, there must be an apparent reason to combine the teachings of the various references. This analysis should be made explicit. In re Kahn, 441 F. 3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness").

In the rejection of claims 20-22, 31-39 and 41, the examiner has failed to articulate any reasoning accompanied by rational underpinning to support the legal conclusion of

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obviousness. In this regard, it is pointed out that the teachings of Caren et al are not relevant to either the method or structure disclosed in Birckigt et al.

Claims 24-29 and 40 have been rejected under 35 U.S.C. 103(a) as unpatentable over Birckigt et al in view of Caren et al and Rohde et al (US 3,771,921).

Rohde et al describes the continuation of air flow through a catalytic converter after engine shut down. The examiner's finding on page 4 of the final rejection that Rohde et al teaches introducing ozone into the exhaust gas line is simple wrong. Rohde et al actually describes the addition of air after engine shut down, which obviously has nothing to do with any usage of ozone or the control of ozone concentration in the exhaust gas line. Therefore, Rohde et al does not solve the basic deficiencies of the Birckigt-Caren combination previously pointed out.

Entry of the amendment and allowance of the claims are courteously solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Ra' followed by a stylized flourish.

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